

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of manufacturing syntactic foam including the steps of:

providing a predetermined ratio of constituent materials including a liquid phase binder and microspheres that are naturally buoyant in that binder, wherein the liquid phase binder includes a predetermined amount of diluent selected to maximize the net buoyant force acting on the microspheres when placed in the binder;

blending the constituent materials into a mixture and placing the mixture into a mold, said mold defining an opening within a lower portion thereof;

allowing the microspheres to float to the top of the mixture until they form a close packed array such that a total void volume of said microspheres is greater than a total interstitial void volume defined by spaces between the microspheres ;

causing excess liquid phase binder beneath the close packed array to flow from the mold through the opening defined in said mold; and

allowing the remaining liquid phase binder to set or cure between the microspheres.

2. (Currently Amended) A method as claimed in claim 1 wherein the microspheres are allowed to float to the top of the mixture until they ~~become close-packed~~ form the close packed array with ~~[[to]]~~ a density approaching the natural microsphere bulk density.

3.-5. (Canceled)

6. (Previously Presented) A method as claimed in claim 1 wherein the liquid phase binder includes an epoxy resin with hardener, and the diluent comprises acetone.

7. (Canceled)

8. (Currently Amended) A method as claimed in claim [[7]] 1 wherein the liquid phase binder is drained from the bottom of the mold until the close packed microspheres reach the bottom of the mold.

9. (Previously Presented) A syntactic foam article comprising close packed microspheres bound together by a cured composition, wherein the composition was, originally the liquid phase binder and wherein the foam was manufactured by a method according to claim 1.

10. (Previously Presented) A method as claimed in claim 1, further comprising maximizing the net buoyant force acting on the microspheres by selecting the diluent to cause the liquid phase binder to have sufficiently low viscous drag characteristics, and sufficiently long curing time, as to allow the microspheres to form a close packed array before the binder cures.